C2N-DAP8RC

7.1 Surround Sound Processor and Room Solution Box

The C2N-DAP8RC is a professional surround sound processor, video switcher, and control interface in a single package. As part of a complete Crestron Home® AV distribution system, the C2N-DPA8RC delivers cost-effective, high-end audio processing, AV signal routing, and device control. Having no front panel controls, the C2N-DAP8RC allows each installation to be equipped with just the right balance of automation and adjustability to suit the needs of the end-user. Whether using a touchpanel, keypad, handheld remote, or computer, the user interface is completely customizable, so control of the C2N-DAP8RC can be largely preset to simplify operation for the technically-challenged, or it can be extensively "tweakable" to indulge the most avid theater enthusiast.

Surround Sound Processor
Based on the powerful Analog Devices SHARC® 32-bit floating point DSP, the C2N-DAP8RC achieves jaw-dropping sonic performance from all of today's digital sources, and is hardware and software upgradeable to support future advancements. Surround modes include Dolby® Digital EX and DTS® ES, as well as Dolby Prologic II and DTS Neo:6, providing every option for decoding and enhancing a complete range of movies and music.

Precision 24-bit 96 kHz A/D converters provide maximum dynamic range for analog sources. A total of 6 analog and 5 digital inputs are provided to accommodate a full complement of sources. In addition to the local inputs, analog and digital audio signals may also be received from a centralized head-end via built-in CAT5 Balanced AV ports.

The 7.1 output section, featuring 24-bit 192 kHz D/A converters, is ideal for driving Crestron's **CNAMPX-7X200** 7-Channel Surround Sound Amplifier. Both 5.1 and 6.1 speaker configurations are also supported. A discrete subwoofer output supports the reproduction of LFE (low frequency effects) audio with extensive bass management control to maximize the performance of any powered subwoofer. Every output includes individual level adjustment, 6-band parametric equalization, and up to 20 milliseconds of delay for precise optimization of the complete speaker system. Graphic equalization is also available, although its effects are global for all outputs. Output levels can be set and stored differently for each surround mode, and EQ presets (5 parametric or 10 graphic) allow for storage and recall of different curves tailored to particular audio material or listener preferences. Global bass and treble control is provided as well.

Complete and precise audio setup can be performed easily using **Crestron's Digital Media Tools (DMT)** software. For proper calibration, pink noise and Dolby noise sources are built into the C2N-DAP8RC.

Three additional stereo outputs are provided to feed line-level audio to recording devices and remote zone amplifiers. Output A is a fixed unity-level output, while Output B features a complete dedicated preamp section with independent controls for volume, bass, treble, balance, loudness, mono, and mute. The third output feeds the CAT5 audio port, allowing local analog audio signals to be routed to a centralized head-end for redistribution to other rooms. Any analog input on the C2N-DAP8RC can be independently routed to any or all of the three stereo outputs, noting that the signal selected for Output B is synonymous with the analog signal selected for the surround processor.

Video Matrix Switcher
The C2N-DAP8RC provides 12 unbalanced video input connectors to accept any combination of composite, S-Video, and high-definition component signals from local video sources. A CAT5 balanced video input port is also provided to receive video and digital audio signals from a centralized head end. Any of the input signals may be freely routed to any of 12 unbalanced output connectors to feed plasma displays, projectors, monitors, and other devices within the room. A CAT5 balanced video output port allows local video signals to be routed to the head-end for redistribution to other rooms.

Through programming, complete AV signal routing becomes transparent to the end-user with all switching occurring smoothly under the command of the control system. Each unbalanced video input even includes built-in signal sensing to report the presence of video signals to the control system, enabling auto-switching capability and providing verification of device power status. Also, since the C2N-DAP8RC's matrix switcher supports coaxial digital audio as well as video, it can effectively be utilized to expand the number of digital audio inputs and allow redistribution of local digital audio sources via the CAT5 balanced video output port.

Room Solution Box
Its bidirectional CAT5 audio and video ports enable the C2N-DAP8RC to interface with **CNX-PVID8** video distribution switchers and **CNX-BIPAD8** audio distribution processors, allowing AV sources to be shared easily between the theater and head end locations using inexpensive CAT5E cable. One Cresnet cable and up to three CAT5E cables (available as **CresCAT™Q**, sold separately) provide complete connectivity for bidirectional audio, video, and control over a distance of up to 750 feet (500 feet for component video).

Four IR/serial ports and one bi-directional RS-232 port provide a powerful interface for control of local video projectors, plasma displays, televisions, VCRs, DVD players, and more. A single digital input port is also provided to support the optional **CNXRMCS** TV current sensor, or any low-voltage contact closure device.

The C2N-DAP8RC functions as a slave device to any 2-Series control system communicating via the Cresnet control network. Any of Crestron's touchpanels, keypads, and handheld remotes may be used to

provide the user interface to control the C2N-DAP8RC and all connected devices. Adding an optional **CNXRMIRD** IR receiver affords cost-effective control from any Crestron or third-party universal IR remote.

> Professional surround sound processor

> High-bandwidth video matrix switcher

> Bidirectional CAT5 balanced audio & video

> Fully customizable touchpanel control

> Analog Devices SHARC 32-bit floating point DSP

> Dolby Digital EX and Dolby Prologic II surround modes

> DTS ES and DTS Neo:6 2-channel modes

> Precision 24-bit 96 kHz A/D converters

> 7.1 output featuring 24-bit 192 kHz D/A converters

> 6-band parametric EQ and 20 mS delay per output

> Discrete subwoofer output w/LFE and bass management

> Three stereo outputs for remote zones and recording

> 2 coaxial and 2 optical digital audio inputs

> 5 unbalanced analog stereo inputs

> 12 unbalanced video inputs and outputs

> CAT5 video in, video out, and audio ports

> Built-in video signal sensing

> 1) RS-232 and 4) IR control ports

> Optional current sensor

> Optional IR remote receiver

> Audio setup using Digital Media Tools software

> Fully configurable in SystemBuilder software

> Controllable via Cresnet communications

SPECIFICATIONS

Video & Digital Audio

Signal Types: Component (YPbPr), S-Video (Y/C), or composite video; digital audio
Video/HDTV Formats: 480i (NTSC), 576i (PAL), 480p, 576p, 720p, 1080i
Digital Audio Format: S/PDIF coaxial
Bandwidth: >100MHz (unbalanced)
Crosstalk: <-60dB
S/N: >70dB

Audio - Surround Sound Processor

Processor: Analog Devices SHARC® 32-bit floating point DSP
A-D Conversion: 24-bit 96 kHz
D-A Conversion: 24-bit 192 kHz
Two-Channel Modes: PCM up to 96 kHz (normal stereo);
Dolby Pro Logic II (Pro Logic, Matrix, Movie, Music);
DTS Neo:6 (5.1 Cinema, 6.1 Cinema, 5.1 Music, 6.1 Music)
Multi-Channel Modes: Dolby Digital 5.1;
Dolby Digital EX;
DTS 5.1;
DTS ES Discrete 6.1;
DTS ES Matrix 6.1
Master Volume: -80dB to +20dB, 0.1dB steps
Surround Output Volume: ±12dB, 0.1dB steps from DMT;
±30dB, 0.1dB steps from SIMPL
Low Frequency Effects (LFE): -10dB to +0dB, 0.1dB steps from DMT;
-15dB to +0dB, 0.1dB steps from SIMPL
Mode Trim (Level Preset): -80dB to +20dB, 0.1dB steps (master);
-30dB to +12dB, 0.1dB steps (per output);
-15dB to +0dB, 0.1dB steps (LFE)
Analog Input Gain: ±10dB, 0.1dB steps
Mute: -80dB (electronic), >-100dB (relay)
Bass Gain Range: ±18dB, 0.1dB steps
Treble Gain Range: ±18dB, 0.1dB steps
EQ Modes: 6-band parametric; 3-band graphic + 3-band parametric; 5-band graphic + 1-band parametric (Independent PEQ per surround/subwoofer channel; global GEQ excluding subwoofer channel)
PEQ Filter Gain: ±12dB, 0.1dB steps from DMT;
±24dB, 0.1dB steps from SIMPL
PEQ Filter Bandwidth: 0.02 to 2.0 octaves (1.0 to 3.0 for shelving)
PEQ Filter Center Frequency: 15Hz to 19.9kHz from DMT;
20Hz to 20KHz from SIMPL
PEQ Filter Types: low pass, high pass, EQ filter (peaking/notching), bass shelf, and treble shelf
GEQ Filter Gain: +5/-10dB, 0.1dB steps
GEQ Filter Center Frequencies: 63, 250, 1k, 4k, 10k Hz (5-band);
250, 1k, 4k Hz (3-band)
Crossover Frequency: 80Hz, 100Hz, 120Hz
Maximum Delay: 20mS per channel
Dynamic Range (compression): Minimum, Standard, Maximum, Variable 0-100%
Sub Limit: -25dB to +0dB, 0.1dB steps
Frequency Response: 20Hz to 20kHz ±0.2dB
THD+N: <0.0009% at 1 kHz maximum output level
S/N Ratio: >113dB
Dynamic Range: >113dB

Audio - Stereo Preamp

Controls: Volume, Balance, Bass, Treble, Loudness, Mute, Mono
Volume Gain Range: -80dB to +20dB, 1 dB steps
Mute: -80dB (electronic), >-100dB (relay)
Bass Gain Range: ±14dB
Treble Gain Range: ±14dB
Frequency Response: 20Hz to 20kHz ±0.2dB
THD+N: <0.02% at 1 kHz maximum output level
S/N Ratio: >100dB

Connectors - Video

VIDEO IN: (1) 8-pin RJ45 female, shielded;
CAT5 balanced video input port;
Input Impedance: 100 ohms per pair;
Connects to **CNX-PVID8X3**, **CNX-PVID8X4**, or any "CH" CAT5 video output port*
VIDEO OUT: (1) 8-pin RJ45 female, shielded;
CAT5 balanced video output port;
Output Impedance: 100 ohms per pair;
Connects to **CNX-PBVR4** or any "CH" CAT5 video input port*

VIDEO IN 5 - 16: (12) RCA female comprising up to 12 video or digital audio inputs;
Input Impedance: 75 ohms;
Input Level: 1 Vp-p nominal;
Signal Sensing Threshold: 0.25 Vp-p;
Connect to video/digital audio outputs of local source devices
VIDEO OUT A - L: (12) RCA female comprising up to 12 video or digital audio outputs;
Output Impedance: 75 ohms;
Output Level: 1 Vp-p nominal;
Connect to video/digital audio inputs of local display/amplifier devices; may be looped externally to SPDIF A or B inputs

Connectors - Audio

AUDIO (CAT5): (1) 8-pin RJ45 female, shielded;
Bi-directional CAT5 balanced audio port;
Maximum Input/Output Levels: 4 Vrms;
Input/Output Impedances: 600 ohms;
Connects to **CNX-BIPAD8**, **CNX-PBAR4**, or any "CH" CAT5 audio port*
SPDIF A - B: (2) RCA female;
S/PDIF coaxial digital audio inputs;
Input Impedance: 75 ohms
OPTICAL C - D: (2) JIS F05 female (TOSLINK) optical fiber connectors;
S/PDIF optical digital audio inputs
AUDIO IN 2 - 6: (10) RCA female comprising (5) unbalanced stereo line-level audio inputs;
Maximum Input Level: 2.5 Vrms;
Input Impedance: 50k ohms
AUDIO OUT A: (2) RCA female;
Unbalanced stereo line-level audio output (fixed level/tone);
Maximum Output Level: 2.5 Vrms;
Output Impedance: 50 ohms (3k ohms minimum load)
AUDIO OUT B: (2) RCA female;
Unbalanced stereo line-level audio output (variable level/tone);
Maximum Output Level: 2.5 Vrms;
Output Impedance: 50 ohms (3k ohms minimum load)
SURROUND SOUND OUT - FRONT, SURROUND, BACK, CENTER: (7) RCA female;
Unbalanced line-level 7.1 Surround Sound audio outputs;
Maximum Output Level: 3 Vrms;
Output Impedance: 200 ohms;
Connect to inputs of **CNAMPX-7X200** amplifier
SURROUND SOUND OUT - SUBWOOFER: (1) RCA female;
Unbalanced line-level subwoofer audio output;
Maximum Output Level: 8.5 Vrms;
Output Impedance: 200 ohms;
Connect to input of powered subwoofer

Connectors - Control & Power

Ground: (1) 6-32 screw, chassis ground lug
IR IN: (1) 3.5 mm TRS mini-phone female;
For connection of the **CNXRMIRD** IR receiver (sold separately);
Allows IR wireless control from Crestron or third-party remotes using RC-5 IR commands
IR OUT A - D: (4) 3.5mm mini-phone female;
IR/Serial output ports;
IR output up to 1.2 MHz;
1-way serial TTL/RS-232 (0-5 Volts DC) up to 9600 baud;
Connect to **STIRP** IR probes (sold separately)
SENS: (1) 2-pin 3.5mm detachable terminal block;
TTL level digital input port, 5 Volts DC, 2k ohms pull-up resistor;
Connects to **CNXRMCS** current sensor (sold separately) or contact closure
RS-232: (1) 6-pin RJ11 female;
Bidirectional RS-232 COM port and computer console port;
Up to 115.2k baud, RTS/CTS hardware handshaking
NET: (1) 4-pin 3.5mm detachable terminal block;
Cresnet slave port, connects to Cresnet control network

Controls & LED Indicators

VIDEO INPUT COMP 1 - 3: (3) screwdriver-adjustable pots for CAT5 video input compensation
PWR: (1) green LED, indicates 24 Volts DC power supplied from Cresnet control network
NET: (1) yellow LED, indicates communication with Cresnet system
SETUP (rear): (1) recessed miniature pushbutton and (1) red LED, used for touch-settable ID (TSID)

Power Requirements

Cresnet Power Usage: 21 Watts (0.875 Amps @ 24 Volts DC)

Environmental

Temperature: 41° to 113°F (5° to 45°C)
Humidity: 10% to 90% RH (non-condensing)

Enclosure

Black metal, 2U 19-inch rack-mountable (rack ears included)

Dimensions

Height: 3.56 in (9.04 cm);
3.47 (8.81 cm) without feet
Width: 17.03 in (43.26 cm);
19.0 in (48.26 cm) with ears
Depth: 8.67 in (22.02 cm)

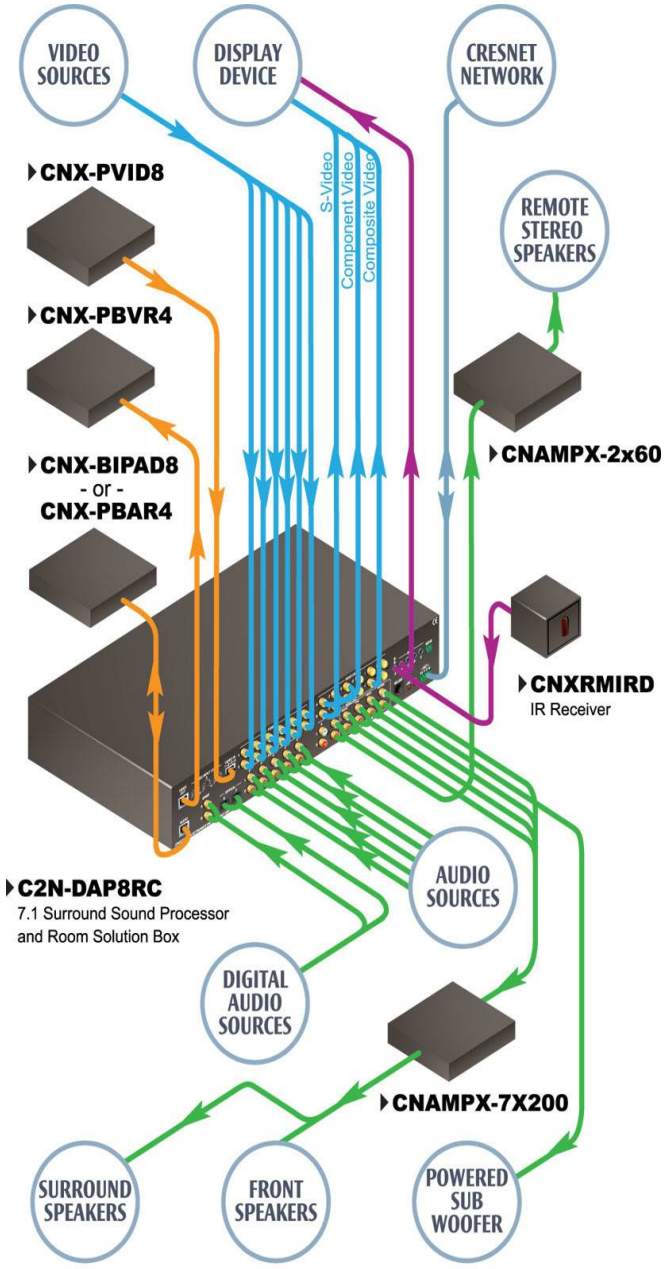
Weight

5.56 lbs (2.50 kg)

AVAILABLE ACCESSORIES

CNXRMCS: Current Sensor
CNXRMIRD: IR Receiver
STIRP: IR Probe
ST-SPL: IR Splitter
ST-MB: "Master-Blaster" IR Sprayer
STCP-501: DB9M to RJ11 Adapter
ST-XX: Custom Serial Interface Cable
ST-PK: Programming Cable Kit
CNAMPX-7X200: 7-Channel Surround Sound Amplifier
CNAMPX-2X60: 2-Channel Room Amplifier
CresCAT-Q: Crestron Home® Cable

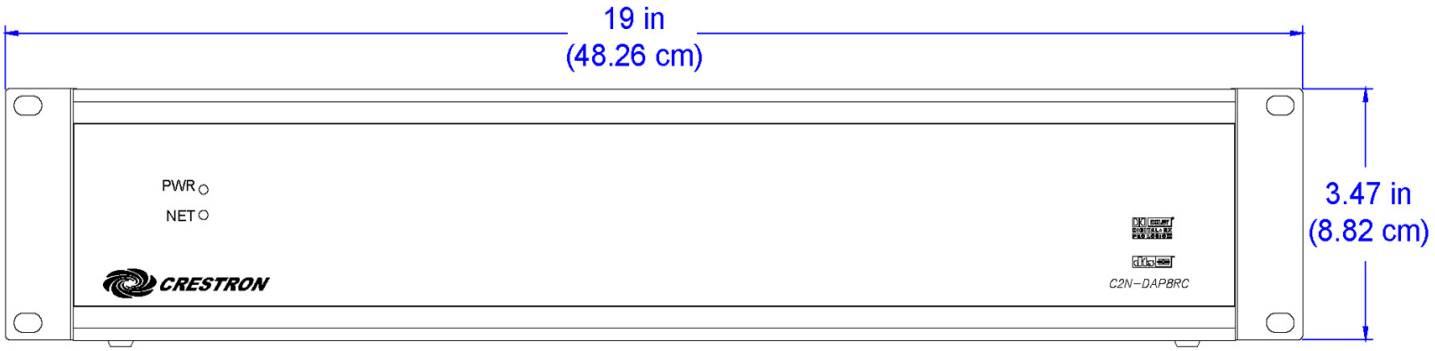
Typical C2N-DAP8RC Connections



7.1 SURROUND SOUND SPEAKER SYSTEM

C2N-DAP8RC

Front



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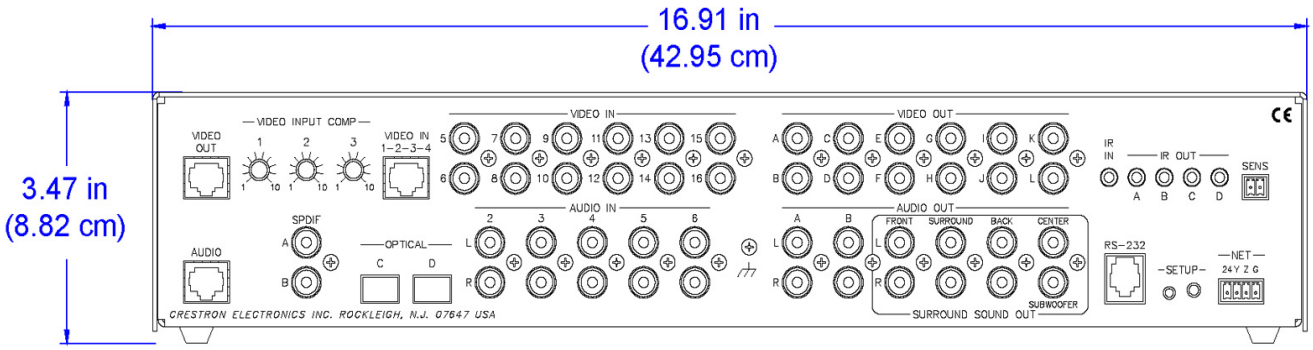

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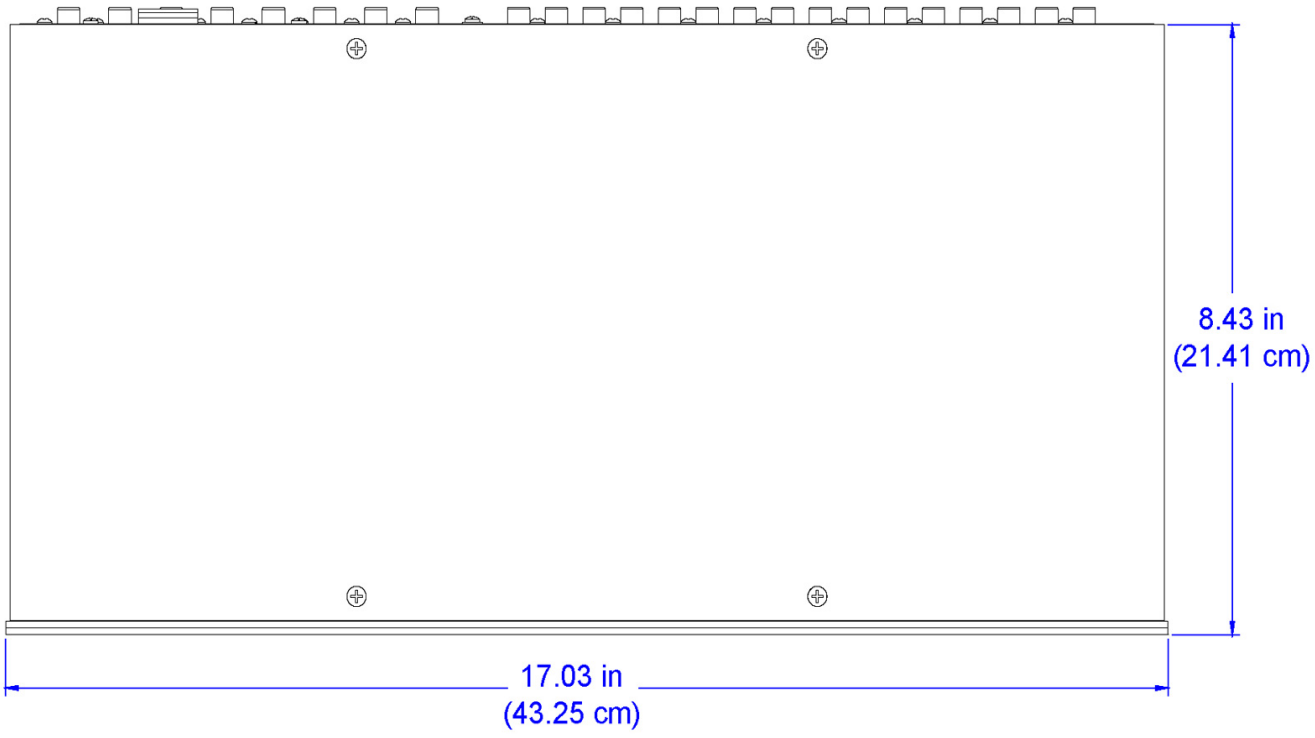

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